FIG. 5*a* is an enlarged view of a third embodiment of a connector.

FIG. 5*b* is a similar view to FIG. 4*b* showing the third embodiment secured to the panel board.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 shows the grounding electrode conductor 1 conventionally connected to a water pipe 2, the grounding electrode, and extending to an inlet 3 of a panel board 4. The conventional connector 5 consists of adjacent plates 6*a*, 6*b* through which conductor 1 passes. These plates contain spaced threaded perforations 7 through which pass screws 8 to secure the conductor 1 to the plates. One of the plates is welded to a bushing 8*a* that threads into an opening 9 in the panel board. The conductor 1 terminates in a bus bar 10 where it is secured by screw 11.

FIG. 2 shows the grounding electrode conductor 1 assembled as in FIG. 1 except for the improved connector 12. The inlet 13 is now of a size to accommodate a high press sleeve 14 which is either ½ or ¾" and is made of copper or aluminum. For a ½" sleeve a #8 through #2 bare copper conductor, or a #6 through #1 bare aluminum would be used. For a ¾" sleeve, a #1 through 3/0 bare copper/aluminum conductor, or a #1 through 4/0 bare aluminum would be used. The portion of the sleeve that enters the panel board is threaded and secured therto by a lock nut 15. The conductor passes through the sleeve and as in FIG. 2 ends in the bus bar 10 within the panel board, where it is secured by the screw 11. The conductor 1 is clamped in the sleeve by crimping the sleeve. As shown in FIG. 3, a long handled plier 16 having arms 16*a*, wherein one arm has a projecting tooth 17*a* and the other arm has a corresponding groove 17*b*. The plier grasps the sleeve at several positions on its outer surface to compress the sleeve around the conductor. A second method shown in FIG. 4 involves shaping the sleeve as a funnel 18 wherein the narrow portion of the funnel is slit into two legs 19 which are threaded the length of the funnel. Beyond the funnel there is a cylindrical threaded extension 20 that is fastened to the panel board and secured by a lock nut 21 adjacent the interior of the panel board. A threaded ring 22, having a diameter corresponding to the diameter of the narrow portion of the funnel, is slipped over the legs. As it is turned upward, it compresses the legs around the conductor. A flange 23 on the extension adjacent the exterior surface of the panel board limits the movement of the ring. While this is the preferred device used to clamp the conductor, a slight modification is shown in FIG. 5*a*. The narrow portion of the funnel is divided into four legs. This modification is more appropriate where the grounding electrode conductor is of a larger diameter. In any case whichever device is used, both the conductor and sleeve are rated for fault current.

The bonding circuit created between the grounding electrode conductor, its associated clamp and the grounding electrode is superior to any of the assemblies aforementioned including that shown in FIG. 1. Bonding means joining all metal parts of the wiring system such as the panel board or other enclosures. It ensures having good, continuous metallic connections throughout the grounding system. While U.S. Pat. No. 4,496,791 discusses bonding according to the National Electric Code of 1981, the spring member therein that completes the bond is made of carbon steel, whereas the grounding electrode conductor and the associated clamp of this invention is made of aluminum or copper which are the acceptable materials of the National Electric Code of 1996; moreover the connector of U.S. Pat. No. 4,496,791 is for a pushbutton switch and would not be suitable for household wiring or commercial wiring. Similarly the clamp of FIG. 1 is of nondescript material, different than the copper material of the grounding electrode conductor. Thus in the event of a ground fault condition, the grounding electrode conductor could bum off because of the dissimilarity of materials.

While the invention has been shown and described in terms of specific embodiments, it will be obvious to those skilled in the art that various modifcations and changes can be made therein without departing from the scope and spirit of the invention.

I claim:

1. A device for bonding a grounding electrode conductor to the enclosure of an electric service box in conformance to the National Electric Code comprising:

a) a grounding electrode having a grounding electrode conductor affixed thereto, said conductor extending from said grounding electrode to said enclosure,

b) said enclosure having an inlet to which a metal press sleeve connector can be affixed, said connector having a top and bottom with an aperture thereat for receiving said conductor, said top of said connector being threaded and secured to said inlet by a lock nut, said conductor having an end that passes through said aperture in said top and being fastened to a bus bar in said enclosure,

c) compression means for clamping and securing said grounding electrode conductor to said metal press sleeve in electrical contact at the region of clamping,

d) said sleeve being in the form of a funnel having a lower, bifurcated, narrow end and a wider upper end having a cylindrical extension that threads into said inlet said enclosure, said funnel having a threaded exterior surface and said compression means includes a threaded ring having an internal diameter that corresponds to that of said narrow bifurcated end, said ring being rotated so as to compress said bifurcated end of said funnel around said conductor,

e) said press sleeve and said grounding electrode conductor being rated for available fault current.

2. A device as in claim 1 wherein said connector and said conductor are made of aluminum.

3. A device as in claim 1 wherein said connector and said conductor are made of copper.

4. A device as in claim 1 wherein said lower end of said funnel is divided into four legs.

5. A device as in claim 1 wherein said connector and said conductor are adapted for a household or commercial wiring system.

6. A device as in claim 1 wherein said sleeve has a diameter of ½" or ¾" and said conductor has a dimension within the range of #8–#2 for a ½" sleeve and within the range of #1–3/0 for a ¾" sleeve.

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